**Normalization**

**--SYNTAX**

Determinant 🡪 (Functional) Dependency

OR

TABLE(Primary, non-key, non-key)

**--1ST NORMAL FORM**

D – Data Type Consistency

R - No Repeating Groups (No data pertaining to one row split across multiple)

O – Rule of One Instance

P - Primary Key Established

**--2nd NORMAL FORM** - Partial Dependency Issue – Non-key can be determined by only **ONE** part of composite key

AB 🡪 NOP

B 🡪 P

**FIX**

A*B* 🡪 NO

B 🡪 P

**--3rd NORMAL FORM** - Transitive Dependency Issue – Non-key being determined by another non-key.

A 🡪 BNOP

B 🡪 P

**FIX**

A 🡪 *B*NO

B 🡪 P

**--3.5 (BOYCE-CODD) NORMAL FORM** – Like 3rd NF, but a non-key determining a **key**.

AB 🡪 NOP

N 🡪 B

**FIX**

A*N* 🡪 OP

N 🡪 B

**--4th NORMAL FORM** – Multivalued Dependency Issue – Multiple values of same type (multiple phone numbers, majors) in multiple columns of same row.

AB 🡪 NOP1P2P3

**FIX**

AB 🡪 NO

AP

**--FORMULA**

1. Find the issue
2. Make a new table out of the issue
3. Remove unnecessary parts from original table
4. Establish relationship between the tables